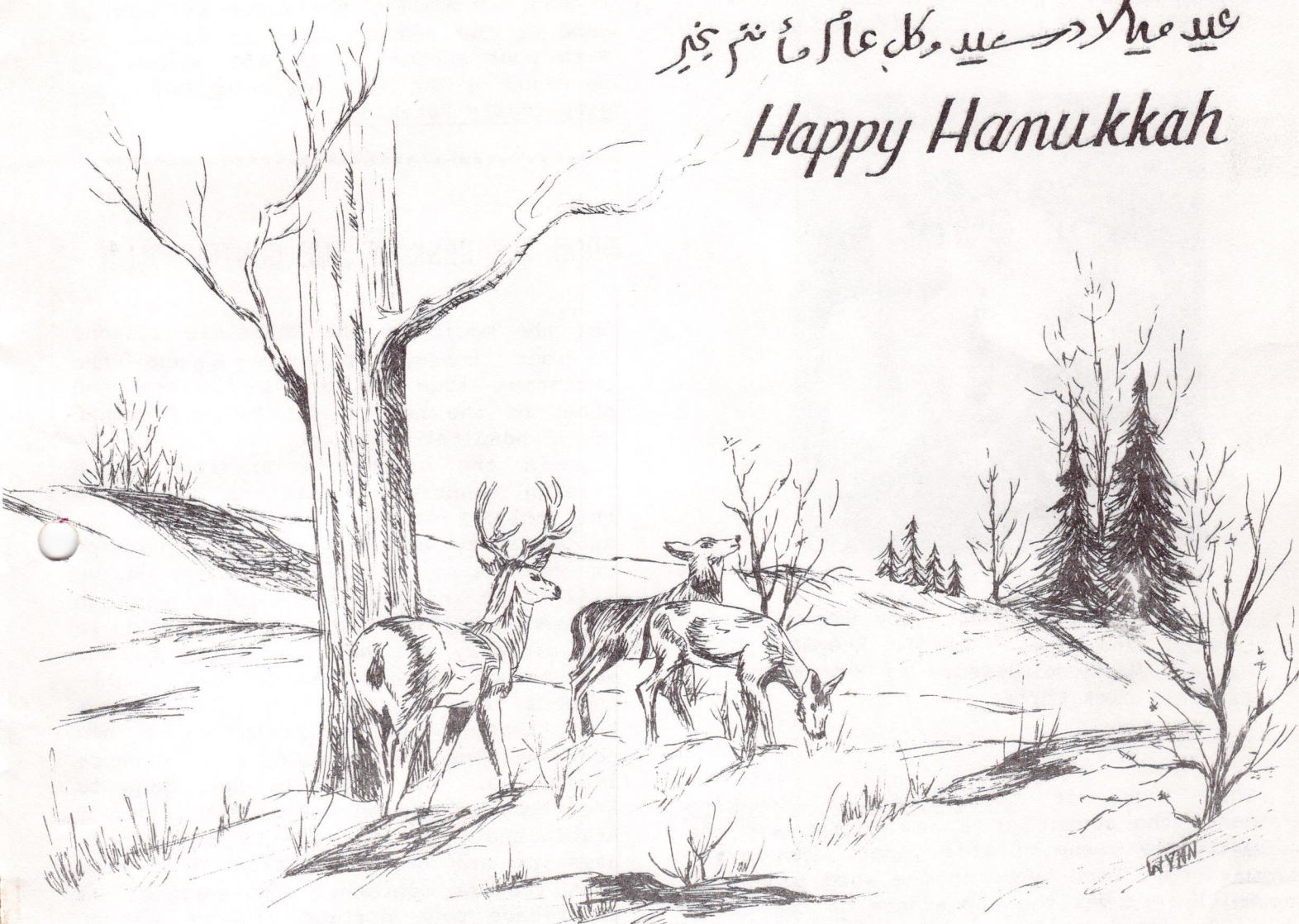


Topographically Speaking.

Merry Christmas

عيد ميلاد سعيد، وكل عام وأنت بخير

Happy Hanukkah



Happy New Year!

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1st Row - Phil Lampert, Gary Raymond, John Conroy, 2nd Row - A. J. Keepes, Jerry Wagner, Marty Moreland, 3rd Row - Leticia Sanchez, Jack Forbes

EDITOR'S NOTE

This issue of Topographically Speaking marks the advent of a new format and the quarterly issue of this paper. The articles have been typed on the word processor which improves the appearance of the articles (notice the right justification) facilitates reading, and adds professionalism. Some of the articles, because of the quarterly issues--will not be "news" to some employees, at least they will be recorded in the paper and may be current news to other readers.

This is my third year on the staff of Topo Speaking and I'm honored to be appointed editor, yet I realize the tasks and added responsibility of the position. With the support of all

employees, Jim's expertise, and the contributions of the staff, I'm confident we can publish an informative, and interesting paper within the high traditions of the past.

If the readers have any suggestions, comments or even criticisms let us know--we'll accomodate anything within reason. Remember, the paper is only as good as the readers want it to be, and with your support, I'm sure we can all be proud of the next few issues of Topographically Speaking.

FROM THE DESK OF THE CENTER CHIEF

Oh, the magic of the Christmas season! In our homes, gathered around the Christmas tree or by the warmth and cheer of the hearth--in the confinement of a hospital room or nursing facility--in the unfamiliar environs of a foreign country, it matters not where this holiday season finds us--the spirit of Christmas will seek us out. Perhaps in the least likely circumstances we will be amazed and delighted to see its presence--in the faces of carolers, in the ministry of those dedicated to our well-being, in expressions of thoughtfulness from our associates, or through the kindness and helpfulness of new acquaintances in a land with diverse ideologies. Uppermost in our thoughts are those of you on assignment in Saudi Arabia and associates and former associates who are facing experiences of life that require courage. May each of us experience some portion of the joy of the season: perhaps just a stillness of spirit that comes to crowd out our disappointment or discontent; the silent recognition that we are a part of an organization that has a heritage of scientific excellence and strong national programs; or thankfulness for an excellent place to work--with a wonderful group of employees--in a caring community. We wish for one and all the blessings of Christmas and the hope of New Year.

4TH NATIONAL MAPPING MANAGERS' CONFERENCE

Mid-Continent Mapping Center was pleased to host the Division's 4th National Mapping Manager's Conference during the week of October 26-30. A photograph of the Division executives and managers who attended will be found at the center of this newsletter.

In keeping with recent custom to hold at least a portion of the conference away from official headquarters, and in the hope that our visitors might enjoy a taste of fall in the Ozarks, arrangements were made to hold the first three days of the conference at Montauk State Park, about an hour's drive south of Rolla. Good sports all, none complained of the rustic accommodations, the isolation, or even the friendly skunks. We hope that the few days provided a relaxing change from their usual environments and some measure of enjoyment of the quiet, fresh air, and natural beauty of the park.

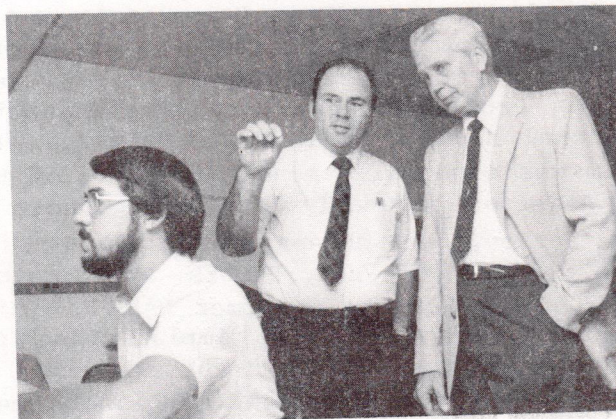
On Wednesday evening, the conferees were welcomed to Rolla by approximately 150 employees and retirees of Mid-Continent Mapping Center assembled for a social hour and dinner at Oak Meadow Country Club. Highlighting the evening were remarks by Rupert B. Southard that encouraged continuing excellence and productivity by National Mapping Division personnel in the ongoing, vitally essential mapping of the Nation. Emphasis on the Division's rightful pride of accomplishment and a promise of positive leadership were good morale builders. Entertainment was provided by the Bubblehead Players, who presented a musical (according to the Players, a questionable term) entitled "A Backward Glance as We Move Forward," or "Rupert's Reorganization Ruminations."

On Thursday and Friday, the conferees met at the Rolla Geological Survey Center to conclude deliberations covering the agenda, an ambitious one that included the general topics of Budget, Center Reports; Long-range Planning,

Programs; Research, EDC, Digital Cartography; Product Information Issues; and Policy, Administration.

All departed on Friday for work as usual in Reston, Denver, Sioux Falls, Menlo Park, and faraway Anchorage, Alaska.

ASSISTANT SECRETARY VISITS ROLLA



Dr. Daniel N. Miller, Jr., Assistant Secretary for Energy and Minerals, U.S. Department of the Interior, was a visitor at the Geological Survey Center on the afternoon of Wednesday, November 4. Dr. Miller was in Rolla for the November 4-6 Energy Conference sponsored by the University of Missouri-Rolla and the Missouri Department of Natural Resources. As banquet speaker on Thursday evening, he addressed the conference on the subject of "Recent Oil and Gas Developments in the Western Overthrust Belt." The Assistant Secretary allowed time for visits to the local Interior facilities that are within his sphere of jurisdiction, the Bureau of Mines and Geological Survey. Following a tour of the Center, Dr. Miller met with Geological Survey management personnel. He presented very helpful information on the organization and personnel of the Office of the Secretary, discussed his and Secretary Watt's position on various national issues, and listened to problems broached by the managers at his invitation.

PECORA VII SYMPOSIUM

by Steve Miller

The Pecora VII Symposium was held October 18-19, in Sioux Falls, South Dakota. The theme of the Symposium was "Remote Sensing: An Input to Geographic Information Systems in the 1980's."

The Pecora Symposium are held in honor of William Pecora, a former Director of the Survey and Under Secretary in the Department of the Interior. Dr. Pecora was a stalwart force in initiating the Earth Resources Observation Satellite Systems (EROS) Program. For those of us in the National Mapping Division, this years program was especially meaningful. Dr. James R. Anderson, formerly Chief Geographer in the Survey, was chosen posthumously as a co-receipient of the Pecora Award along with Leonard Jaffe, a former NASA official who was instrumental in implementing the early ERTS (now Landsat) satellites. Of course, Dr. Anderson will be long remembered by those involved in land resources for his contributions in remote sensing and land classification systems.

This years Symposium was also important to the future of the National Mapping Division and particularly to the digital mapping efforts in the Division. As a professional involved in geographic information system design and development, it is encouraging to see the emerging awareness that image processing system (IPS) technology and geographic informations systems (GIS) can be merged to create a hybrid system with exciting potentials. Basically, IPS technology successfully handles digital image data from satellites, but it has often suffered from poor interpretive accuracy results in identifying categories of land cover and characteristics. On the other hand, GIS requires data on land cover and characteristics on a recurring basis and much other map data. In order to meet these needs, GIS have developed capabilities for storing and retrieving digital map data. These map data sets, if properly interfaced with the image data, can be used to enhance interpretation of image data and thereby improve the quality of data used by GIS for decision-making. This is precisely

where data from the digital cartographic data base can play an important role.

As an example, current sensors on Landsat are inappropriate for use in delineating specific land use and cover conditions in complex urban areas. Conversely, the inability to eliminate such areas from further analysis for non-urban applications may affect the accuracy of the classification. With map data available in digital form, such as DLG data for corporate boundaries or the boundaries of urban land use and land cover polygons from the National land use mapping effort, it would be possible to identify and screen urban areas from the classification process. As another example, several recent studies have shown that the accuracy of the classification for vegetation type is improved when digital elevation data sets are combined with Landsat imagery. Since vegetation type is highly correlated with relative elevation in many areas, the elevation values can be used to restrain the classification process and thereby improve the accuracy of the classification.

These are only two of many possible examples of how better integration of IPS and GIS can lead to more successful applications of remote sensing and computer processing in land resource planning. Of course, the digital cartographic data base is vital to these efforts since a store of digital data is an essential component to a spatial data base.

These and other topics were addressed in a paper I presented at the Pecora Symposium entitled "Compressing Interpreted Satellite Imagery for Geographic Information Systems Applications over Extensive Regions." In addition to the Pecora Symposium, I also attended a follow-on workshop on Remote Image Processing Systems (RIPS) sponsored by EROS Data Center. This workshop was held on October 22-23 and dealt with recent advances in micro-computer based image processing systems.

At the workshop, fourteen prototype and some currently available systems were demonstrated. In general, these systems offer a full range of image processing capabilities for costs of under \$30,000. This is a significant reduction over other commercially available systems and potentially can expand the user community for image data and, in light of the need for other map data and GIS support, digital cartographic data.

In fact, EROS is considering subdividing the Landsat image data it provides into 7.5-minute quadrangle sections for distributions to RIPS stations over the phone lines. With these hardware capabilities and expected advances, we should see tremendous opportunities for expansion of the digital mapping program in the near future.

DR. DALLAS PECK CONFIRMED AS HEAD OF U.S. GEOLOGICAL SURVEY



The United States Senate on September 18, 1981, confirmed the appointment of Dr. Dallas L. Peck as the new Director of the U.S. Geological Survey, Department of the Interior.

At the time of Peck's nomination by President Reagan in early June, Interior Secretary James Watt said, "Dr. Peck is a nationally and internationally recognized authority on a wide variety of geological studies who has demonstrated in 30 years of Federal service a dedication and ability to make earth science work for

the public good through practical application and farsighted research.

"I am particularly pleased that he will be taking charge at a time when the USGS will be called upon to play a key role in the department's immediate efforts to improve and streamline out environmental stewardship of lands, resources and programs, including the wise exploration, development and management of our energy, mineral and water resources," Watt said.

With the Senate confirmation, Peck becomes the 11th Director of the 102-year-old USGS. Doyle G. Frederick, Associate Director, has been serving as Acting Director while the search for a new Director was being conducted.

Peck, 52, is a native of Cheney, Wash., and attended the public schools of Spokane, Wash. He received formal training in geology at California Institute of Technology (bachelor of science with honors, 1951, and masters of science, 1953) and Harvard (doctorate, 1960). He joined the USGS in 1951 and much of his career has been involved in geological and geothermal energy studies in the West, including field research at the USGS Hawaiian Volcano Observatory.

In 1977, Peck was named Chief Geologist and head of the USGS Geologic Division. Special Assignments have included serving as U.S. member of special scientific delegations to the Soviet Union, Great Britain, Italy, Iceland, New Zealand and Japan. Peck is the author of more than 50 scientific reports and publications and, in recognition of his research efforts, was awarded the Department of the Interior's Meritorious Service Award in 1970. His leadership as Chief Geologist earned him the Department's highest award, the Distinguished Service Award, in 1979, and the Presidential Meritorious Executive Award in 1980.

Peck was highly recommended for the post of USGS Director by the National Academy of Sciences, which at the request of Interior Secretary Watt conducted a nationwide search for qualified candidates to head the U.S. Geological Survey.

THE DIGITAL REVOLVING FUND

by John Kelmelis

The concept of a revolving fund in the Geological Survey can make your head spin. It means to run that fund like a private enterprise. This entails actually trying to make a profit and then, accounting for any profit or loss.

It all started in 1980, when a report entitled "An Assessment of the Need for a Centralized Digital Cartographic Data Base," was authored by Emory E. Donelson for the Office of Sciences and Technology Policy. This report concluded the following:

- o A National digital cartographic database is justified.
- o The requisite program should be centralized in the Geological Survey.
- o There is sufficient demand for digital products produced by a central facility to support a self sustaining program, and that
- o there are a number of important next steps which must be taken with responsibility shared by the Geological Survey and the Office of Management and Budget.

During the months that followed the issuing of that report the USGS was given the responsibility of establishing a revolving fund or a cost recovery system.

The strategy of how a revolving fund would be brought into existence was of the production that would be needed to adequately fill the data base as the costs of maintaining the data base, marketing and selling the product, administering the program and any other direct overhead charges that might be encountered.

The strategy showed that appropriations for digital operations would have to be increased for the next three years then leveling off for several years and then

declining to zero after which time the seed money would have grown into a full fledged operating program with the USGS turning money into the treasury after that.

Personnel from various parts of the Geological Survey were joined into a Digital Cartography Cost Accounting Task Force. Numerous possible approaches to performing the nuts and bolts design of the Digital Revolving Fund were examined and a few were selected as feasible. These were further examined with the most efficient one being chosen.

Then the atmosphere changed. A congressional subcommittee recommended that a revolving fund not be implemented. A cost recovery system was requested instead. The changes that were necessary for a revolving fund were too costly for operating a cost recovery system.

An alternative plan was adopted. This involved more accurately determining the costs of digital products by specific category. To accomplish this a new series of phase numbers was proposed for digital cartography.

More accurate cost records will be kept during FY 1982. Additional work will be done as well. For instance, an indepth marketing study will be conducted to determine exactly what types of digital data is needed by the consumers and better estimates will be made of the amount the consumers will spend for the products.

Existing systems, such as NCIC's INORAC, can be modified to handle the sales of digital data and an inventory information system has been proposed for the Digital Cartographic Data Base.

The digital revolving fund is not dead. It may lay dormant for one or several years as belt tightening continues in Washington and seed money becomes more difficult to obtain. But there seems to be a new philosophy growing. That is, that the users of government services pay the full cost of those services. If this philosophy takes hold and grows the Digital Revolving Fund may rise again, grow and prosper.

SALES INCREASE IN FY 1981

by John Conroy

Sales of map products sold by the National Cartographic Information Center at MCMC during fiscal year 1981, excluding those at NSTL Station, Miss., increased 31% over 1980 sales, according to NCIC Chief Phil Havens. The increase in sales reflects the efforts of MCMC to become more responsive to changing map user needs.

NCIC currently carries about 4,200 active accounts for our products. As can be expected, there is a tremendous variety of individual and organizational interests being serviced. There are three main groups that purchase cartographic material: commercial businesses; State organizations and other Federal agencies outside the USGS; and Federal agencies from other Divisions within the Survey.

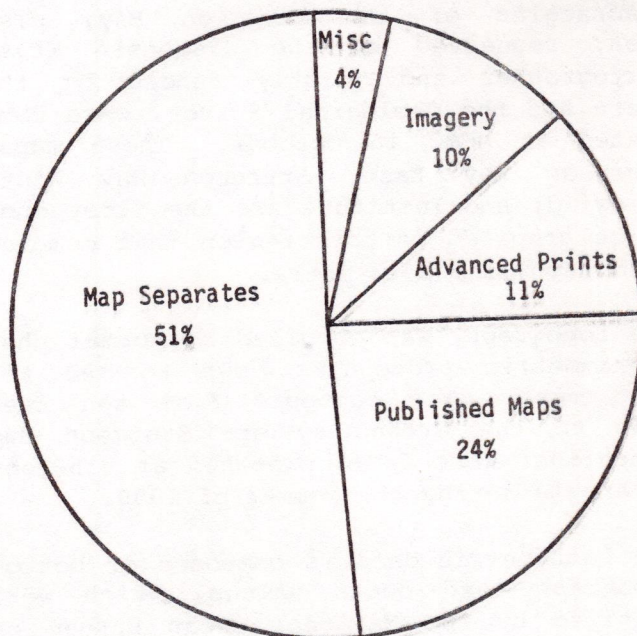
Commercial sales accounted for fifty-seven percent of the total in fiscal year 1981. Individual customers included farmers, ranchers, and recreational outdoorsmen. The list of private businesses served last year included timber companies, oil companies, coal companies, pipeline companies, electric coops, planning consultants, engineering companies, private mapping firms, law firms, private surveying companies, real estate firms, railroad companies, and even a major automobile manufacturer.

Thirty-five percent of the sales last year were to State organizations and other Federal agencies outside the USGS. Customers among the State organizations included universities and colleges, State Highway and Transportation Departments, State Conservation Departments, local and regional planning commissions, Departments of Natural Resources, State Parks, and State Geological Surveys. Among the other Federal agencies outside the USGS that were customers last year were NOS/NOAA, the US Army Corps of Engineers, the USDA-Forest Service, and the USDA-Soil Conservation Service.

Sales to Federal agencies from other Divisions within the USGS made up the remaining eight percent of the total sales in fiscal year 1981. The majority of these sales were to maintain the interworking relationships within the USGS. The customers included the Water Resources Division and the Conservation Division, as well as a number of the smaller Division offices within the Survey.

	Commercial	State-Fed	Fed(OD)	Total
Map Seps	\$69,483	\$75,001	\$4,191	\$148,675
Pub Maps	57,246 (47,973)	12,322 (13,698)	275 (156)	69,843 (61,827)
Adv Prts	19,797 (14,930)	8,656 (6,506)	3,652 (2,613)	32,105 (24,049)
Imagery	11,945	3,437	13,219	28,601
Misc	7,740	3,302	1,238	12,280
Total	166,211	102,718	22,575	291,504

Sales table of map products. These figures have been rounded off to the nearest dollar, and include the thirty percent discount given to State and Federal agencies, and to commercial orders over 300. Numbers of published maps and advanced prints are shown in parentheses.



Percentages of dollar sales of cartographic products for fiscal year 1981.

continued on page 8

continued from page 7

The largest selling product last year was map separates, which represented fifty-one percent of all sales. Published maps were the second most popular item, accounting for twenty-four percent of the sales. Sales of advanced prints made up eleven percent of the sales total, while sales of imagery accounted for another ten percent. The remaining four percent was primarily made up of sales of LUDA maps, geodetic control information, and photolab services.

Everyone working at MCMC can take pride in the fact that they provide a vital service for a great variety of customers in both the commercial and governmental sectors of the country. In the future, MCMC will maintain this level of service by continuing to be responsive to changes in map user needs.

TOPO/BATHY MAPS COMPLETED

by John Conroy

Four unique 7.5-minute, 1:24,000-scale quadrangles of the Sturgeon Bay, Wis. area, requested by the Wisconsin State Cartographer and jointly funded by the State and the Geological Survey, were completed at MCMC in October. These maps; Sturgeon Bay East, Sturgeon Bay West, Idlewild, and Institute are the first ones to be prepared in this region that combine topography and bathymetry.

The topography was compiled by normal photogrammetric procedures down to the ten foot mark. The contours from ten feet down to the Green Bay and Sturgeon Bay shorelines were field sketched at 2.5-foot intervals during the summer of 1980.

The bathymetric data is composed of bottom topography and depth values, which were supplied by the National Ocean Survey of NOAA (National Oceanic and Atmospheric Administration). The bathymetric contour interval is one meter, with supplementary half meter contours. Each five meter depth gradient is color coded with gradually darker shades of blue to indicate increasing depth.

Sturgeon Bay is a rapidly growing industrial-resort area. These maps will be used in planning, zoning, inventorying, and conserving this environmentally dynamic coastal area.

CARTOGRAPHY STEPS UP THE PACE

by W. D. Parkinson

The cogs were meshing and the rollers were turning as Carto showed a 15 percent gain in products completed during the fiscal year just ended. The DLG Group did even better, coming up with a 38 percent gain.

Here are the statistics:

	<u>FY 1980</u>	<u>FY 1981</u>
Standard new, replacement, and revision		
quads	448	464
Photorevision	291	303
Standard reprints	150	175
Orthophotomaps	26	1
Metric 7.5' x 15'	1	8
Orthophotoquads		
(AP and Litho)	100	228
USGS 1:100,000-scale		
topo	25	25
BLM 1:100,000-scale		
topo	21	23
USGS County topo	8	11
SCS County planimetric	27	22
National Park		
(Badlands)	0	2
DMA 1:50,000-scale	5	0
Land use 1:250,000-scale	7	14
Total	<u>1,109</u>	<u>1,276</u>
DLG units archived	1,316	1,818

With the advent of provisional maps and our soon-to-be-delivered Omnitech 2100 typesetting system, we look forward to even greater things in 1982.

HOW TO LOSE WEIGHT over the holidays--One way is to sing a lot of Christmas carols since you burn up calories at the rate of 120 an hour when you sing.

INKED COPY MANUSCRIPT EXPERIMENT

by Al Niles

An experiment with scribing procedures was recently completed on the Albert Lea SE, Minnesota, quadrangle. With the introduction of the new Provisional Map Series, it was decided that some changes in the scribing procedures would be beneficial to the Mapping Center.

This experiment, involving personnel in Photogrammetry, Field Surveys, and Cartography, was conducted to determine the feasibility of furnishing Cartography with an inked copy manuscript for the culture and timber plates.

The stereocompiler found it necessary to furnish a more thorough and exact copy since the scribing would be completed in another Branch. An information overlay was used to clarify the inked copy. A color coding system was also devised to help delineate various planimetric features. Cartography was able to scribe these features with a minimum of problems.

The Field Surveys Inspection Section was responsible for final scribing the boundaries and public land subdivisions.

Cartography used the Intergraph (M&S) and Gerber systems to print the contour labels, benchmarks, and elevations on the map. The provisional map guidelines call for these items to be handscribed by the stereocompiler, but the Intergraph system was tested to determine if it might be a more cost-effective method. The legibility and uniformity of this system would improve the new map with little or no additional cost.

Three other quadrangles are now being compiled on an experimental basis with different scribing procedures being evaluated for each quadrangle. After examining each alternative, the most cost-effective procedure will be utilized in preparing the new provisional maps.

JIDDAH, SAUDI ARABIA, MAPPING PROJECT

by Dave Bennett



Left to Right: Dave Bennett, Dick Pirtle, Jerry O'Brien, Jack Turner, and Bill Harris

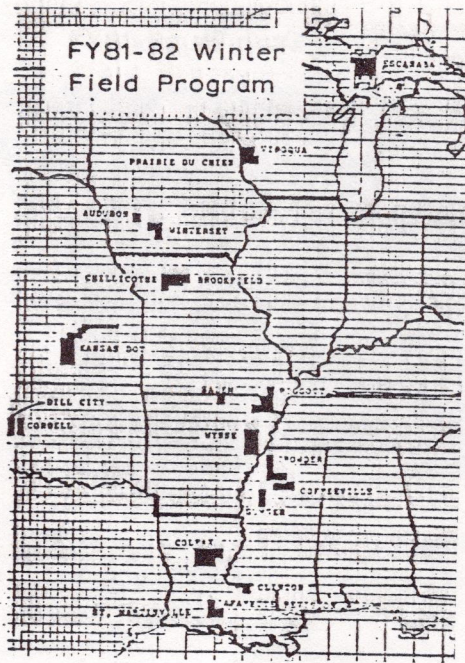
Five MCMC employees departed Monday, October 19, enroute to Jiddah, Saudi Arabia, for fieldwork on the Jiddah Mapping Project. The personnel assigned to the project, Dave Bennett, Bill Harris, Jerry O'Brien, Dick Pirtle, and Jack Turner, traveled to Reston for two days orientation before leaving for Jiddah, via Rome.

Planning and other preliminary work began more than one year ago with the selection of Dan Canfield as Project Manager. After several delays, the compilation photography was obtained early in the Summer of 1981 and the four-month field assignments were set up. Since the project includes the city of Jiddah, equivalent to the size of Kansas City, Mo., the field party will be headquartered at the USGS Mission in the city.

The mapping will consist of fifteen 7.5-minute quadrangles with terrain ranging from flat coastal plains to rugged mountainous highlands, as well as including the city of Jiddah with its surroundings. Classification of cultural features in a foreign country will doubtless present some problems but in the main, the fieldwork is expected to be very similar to that of MCMC. Working with a Saudi driver and a Somali field assistant may not be as routine.

FY 1981-82 WINTER FIELD PROGRAM

by Tony Keepes



ARKANSAS

Salem Project
Spanel, F. S.

Wynne Project
McHugh, J. J. P.
Brander, J. E.
Taipale, V. P.
Barney, L. A.
Hartley, C. W.

ARKANSAS-MISSOURI

Piggott Project
Hinely, J. A.
Paquette, D. F.
Rinehart, R. E.
Tennant, D. K.
King, D. E.
Pedro, A. J.
Rise, A. E.
Chaney, R.

IOWA

Audubon Project
Chaney, R.
Maus, D. E.

Winterset Project
Chaney, R.
Maus, D. E.

KANSAS

Kansas DOT Project
Felkerson, J. T.

LOUISIANA

Colfax Project
Payne, R. L.
Adams, T. P.
Arneson, R.
Burgeson, D. N.
Kelly, C. R.
McCurley, W. K.
Noordhoek, J. L.
Sandul, G.

St. Martinville
Tackett, L. M.

Lafayette Rev. Project
Tackett, L. M.

Clinton Project
Kirk, J. L.
Parker, R. C.

U. MICHIGAN

Escanaba Project
McFarlin, W. R.
Schoenmann, J. H.

MISSISSIPPI

Coffeeville Project
Lien, C. D.

Crowder Project
Larson, T. C.
Schwartz, J. W.

Sumner Project
Kennedy, M. L.
Sidie, R. P.

MISSOURI

Brookfield Project
Krueger, F. W.
Perry, L. A.
Chaney, R.

Chillicothe Project
Lucas, D. R.
Blaser, R. R.
Chaney, R.

OKLAHOMA

Dill City Project
Scroggins, G. D.
Barrett, R. R.
Knouse, W. E.

Cordell Project
Scroggins, G. D.
Barrett, R. R.
Knouse, W. E.

WISCONSIN

Prairie du Chien Proj
Wood, W. G.

Viroqua Project
Wood, W. G.

NOTES FROM THE FIELD

by Ron Payne

On September 19th, R. L. Payne and L. A. Perry attended the meeting of the Upper Peninsula Chapter of the Michigan Society of Registered Land Surveyors held at the Pioneer Inn at Escanaba, Michigan. The film "Mapping the Earth's Surface," was shown to the 23 members attending, and was followed by a presentation on the National Mapping Division's mission, map production procedures, and the availability of map products which might be of particular interest to them. Folders of informational material about Survey activities and products which were supplied by District Chief J. P. Ryan were assembled and distributed to the members, and were received with much interest. The meeting closed with a question-and-answer session, and an opportunity for those attending to examine some of the equipment used in the Survey's fieldwork as well as some fieldwork-in-progress material.

COLONIAL VIRGINIA MAP NOW AVAILABLE IN FRENCH EDITION

A modern topographic map of Colonial Virginia, designed to aid visitors and to highlight the bicentennial of the historic battle of Yorktown (October 19, 1781) is now available in a French as well as an English language edition to help commemorate the French contributions and sacrifices during the Revolutionary War, according to the U.S. Geological Survey, Department of the Interior.

To commemorate the 200th anniversary of the battle of Yorktown, Secretary of the Interior James Watt was to present, on October 19, 1981, at the Yorktown Visitor Center, special edition copies of the new map to President Reagan and French President Mitterand.

Rupert B. Southard, Chief of the USGS National Mapping Division, Reston, Va., said, "While the map will certainly have practical use for the many French-speaking persons visiting the colonial Virginia area, especially during the remainder of the Bicentennial celebration, it also, in a rather modest way, recognizes the important support provided this country by the French during our Revolutionary War. The map will complement the other National Park Service publications also printed in French."

"An idea of the extent of the French support can be seen by a quick glance at the Yorktown battlefield side of the map which shows numerous French positions, fortifications and camps," Southard said.

Except for the translation into French the map is the same product originally prepared to commemorate the bicentennial surrender of Lord Cornwallis, to General George Washington, on October 19, 1781.

The 44- by 24-inch multi-color map sheet includes a large detailed map of the Yorktown battlefield, and a text describing Colonial events in the Historic Triangle.

Areas of particular interest shown on the Colonial Virginia side of the map include Jamestown, the historical parks associated with the site of the first colony in the United States, Colonial Williamsburg, the Yorktown battlefield and Washington's headquarters, and the College of William and Mary. In addition to the topographic features of the battlefield, the map shows the American, British, and French fortifications and troop positions during the battle of Yorktown, and the battle headquarters for such famous generals as Washington, Lafayette, Rochambeau, Knox, Nelson, and Von Steuben.

The battlefield side of the map includes a short text on the history and development of Colonial Virginia. The aspects of the Revolution that took place in Virginia, the siege of Yorktown and the surrender of Cornwallis. Also shown are photographs of areas of interest in Colonial Virginia as well as a reproduction of the original Yorktown siege map drawn in October 1781.

The Colonial Virginia side of the map covers about 167 square miles and is produced at a scale of 1:25,000 (one inch on the map represents about 2,200 feet on the ground). The Yorktown battlefield side covers about 22 square miles, is produced at a scale of 1:10,000 (one inch on the map represents about 850 feet on the ground).

The map is prepared in a conveniently folded, pocket-sized format, and called "Colonial National Historical Park, French Edition," was produced as part of the USGS National Park Map series. The map is available for \$2.00 each from the Maps Section, Eastern Branch of Distribution, U.S. Geological Survey, 1200 South Eads St., Arlington, Va. 22202. Orders must include check or money order payable to the U.S. Geological Survey.







HOW SWEET IT WAS FEDERAL WOMEN'S WEEK (10/19-23/81)

by Laura Bennett
Peggy Hughes
Sherry Von Klemen

Doughnuts provided by the Federal Women's Committee during morning coffeebreak, kicked off the beginning of Federal Women's Week at MCMC. They were a "sweet" success with everyone.

The conference room was "sold out" for the showing of "Pack Your Own Chute," a film by Dr. Eden Ryl. The theme of the film was how to accept responsibility for your actions and how to motivate yourself toward positive results.

Our plan of strategy Wednesday included a workshop on "How to Fill Out an SF-171 and KASOCS." Helpful handouts and an informative lecture was presented by Florence Sanders from Personnel Office.

On Thursday a panel of local women business owners presented a program from UMR entitled "Entrepreneurs--Women In Business."

For Friday the entire workforce at MCMC was invited to conclude the week by wearing costumes reminiscent of days gone by.

This years recipients of special certificate recognizing them for their outstanding performance were:

Monday: Laura Bennett
Tuesday: Velma (Dolly) Nash
Wednesday: Catherine Bade
Thursday: Elizabeth Hardebeck
Friday: Mary Holmes

FWP's award for Outstanding Man of the Year was presented to Don Beasley for his work as EO Representative and his active role in the many programs at MCMC.

INTRODUCTION TO SUPERVISION

by Jerry Wagner



A course entitled "Introduction to Supervision," was held at MCMC the week of September 14-18. A total of 23 employees from the National Mapping Division, Water Resources Division, Conservation Division and the Bureau of Mines, were in attendance. The instructor was Mr. Pat Dibello of the Office of Personnel Management in St. Louis. This course is the first of two 40 hour OPM courses required by the USGS for all new and potential supervisors. The participants were exposed to modern supervisory techniques and theories applicable to present supervisory duties. Topics stressed included, the role of a supervisor, problem solving, leadership styles, improving communications, planning concepts and personnel management.

Mr. Dibello did an excellent job in his presentations, and used interesting films to illustrate procedures and practices. The participants enjoyed the course and thought it would prove very beneficial to them as present or future supervisors.

ACSM MEMBERS TOUR McDONNELL DOUGLAS

by Larry Jontz, Reporter



On September 9, members of the Greater Rolla Area Section of the American Congress on Surveying and Mapping visited the world headquarters of the McDonnell Douglas Corporation in St. Louis. After viewing the introductory film "Minds Over Matter," in their plush auditorium and learning about the many products developed by their creative teams of engineers, scientists, and technicians, we were given a tour of the Prologue Room. Within this small museum were exhibits that told the story of more than 50 years of aerospace science and engineering. Through the use of models, dioramas, and pictures the ACSM members learned how James McDonnell started a small company devoted to subcontracts for wartime suppliers while studying and developing the first jet-propelled carrier based fighter, the McDonnell Phantom. We even learned the part Rolla played in aerospace history when Mr. McDonnell chose the 1957 commencement exercises at the Missouri School of Mines to announce that manned space flights were "near reality," and then starting and leading his corporation in the designing and building of the Mercury spacecraft to be used by John Glenn. This was to be followed by the Gemini spacecraft, built in St. Louis and used in the first space rendezvous and for Ed White's spacewalk. Life-size models of these two spacecraft, actually used for testing, were on display and made us wonder how the astronauts kept their sanity while orbiting in such compact surroundings.

But as we learned from other displays and models, the corporation did not stop their development here. After their merger with the Douglas Aircraft Company in 1967, the new McDonnell Douglas Corporation stepped up development with their introduction of the F-4 Phantom, the F-15 Eagle (the world's most capable fighter), the F-18 Hornet (attack jet of the 1980's), the AV-8B/STOL (vertical take-off and landing) attack fighter, in addition to the DC-9, DC-10, and Super-80 commuter airliners. Further progress was witnessed in the space program with the McDonnell Douglas built Skylab and the Saturn booster stages.

As with most of our tour group, the name McDonnell Douglas is quickly associated with the aerospace industry as it employs more than 80,000 people worldwide in this field alone and is Missouri's largest private employer. But few realize that one of its companies, MCAUTO, is one of the world's largest computer service companies providing services in data processing, demonstration and client work facilities, computer hardware and software support program development and systems analysis, training and documentation, consulting, data conversion, and administration.

After a short ride from the World Headquarters Building to the 74 acre, seven building "campus" of MCAUTO, we toured the 250,000 square foot computer building where all the computer mainframes, disks, tape drives, and printers are located and where more than 1.5 million messages are received daily from their customers. After touring MCAUTO's maze of hardware (because of the tight security needed in a data processing business of this nature, visitors are only allowed to view from galleries) and learning about many of the company's services, vital statistics, and capabilities, we went to the Campus Learning Center, the largest of its kind in this field. The Campus Library is one of the few libraries in the country to specialize in computer science materials, receiving 125 periodicals in addition to having numerous general reference books. Adjacent to the library are the training facilities, where employees take advantage of videotapes, audio, and computer-aided

instruction in a wide range of subjects; the Demonstration Center, where clients and prospective clients learn more about the capabilities of MCAUTO; and the MCAUTO Client Data Center, where clients can process MCAUTO programs on Center-provided terminals and hardware in maximum privacy.

This tour not only allowed participating ACSM members a view of Missouri's largest employer, one that has helped make St. Louis a leader in the aerospace industry, but it was to our surprise that our tour through the computer facilities would provide us with the opportunity to see one of the largest computer operations in the world. Not only were we all left dumbfounded by its size, but we were amazed at the types of services provided by MCAUTO to the world's industrial community. Through visits to other corporations and businesses such as this visit by the members of the ACSM, new ideas on technical and scientific advances, industrial environment, problem solving, and employee training can be obtained to help in development of our own business.

Upon completion of the day's activities, any of the members attended the Cubs-Cardinals baseball game at Busch Stadium and watched the Cubbies win.

GETTING BELTED

The National Safety Council reports that less than 20 per cent of the nation's drivers wear seat belts. This is a dramatic statistic, particularly because it has been conservatively estimated that of the 50,000 Americans who are killed each year on the highways, at least half of them would have been saved had they worn seat belts.

By wearing a seat belt you set a good example for your children and other loved ones.

So don't sit on it--wear it. Seat belts save lives.

ACSM-ASP

by Jerry Wagner



Norman Brown of the Missouri DNR

A joint ACSM-ASP meeting was held October 31, in the main conference room of the USGS building, Rolla, Mo. Marty Moreland, ACSM Chairman, introduced Norman Brown, Chief of Land Surveys, Department of Geology and Land Surveys, Missouri Department of Natural Resources. Mr. Brown gave a very interesting and informative talk on the original boundary survey of the State of Missouri. For this presentation, Mr. Brown dressed and talked as if he were one of the original survey crew while demonstrating the survey equipment used. Mr. Brown talked about the problems encountered and the minor inaccuracies incurred during the survey of Missouri's western and southern boundaries. Despite a steady diet of hardtack and salt pork, sickness and inclement weather, the survey took only 4 months during 1823; a relatively short period of time for a major survey. Refreshments were served at the conclusion of the program.



FEDERAL INFORMATION CENTER

Have you ever tried to find an answer to a simple question about the Federal Government and ended up on a merry-go-round of referrals? Or, have you ever had a question that was so difficult that you didn't know where to turn?

Let our experts on the Federal Government save you time and headaches! The Federal Information Centers' staff is carefully selected and trained to help you get the information you need from the more than 125 agencies and departments in the Federal Government.

Call the Federal Information Center, 425-4106 in St. Louis, or toll-free, 1-800-392-7711 for Missouri residents in Area Code 314. Let the Center personnel help you get the answers you need from the Federal Government. You can also visit or write the:

Federal Information Center
Room 1700, Federal Building
1520 Market Street
St. Louis, Missouri 63103

LAND-USE MAPS PUBLISHED OF PARTS OF EASTERN MISSOURI

Maps showing land use and land cover on more than 12,500 square miles in 33 counties in eastern Missouri have been published by the U.S. Geological Survey and may be purchased by the public.

The 1:250,000-scale (one-inch represents about four miles) maps delineate different categories of land use such as commercial, industrial, residential and agricultural, and different kinds of land cover such as forests and water. The land use and land cover information is printed in black over a base map, printed in green, that shows natural and man-made features such as streams, roads, and cities.

The land use and land cover maps are aimed mainly at helping in land, water, energy, mineral, environmental and other resource planning.

One of the three maps shows land use and land cover in the Rolla 1-by-2-degree quadrangle and should be helpful to planners in possible development of potential mineral resources in the 7,600 square mile region in southeastern Missouri.

The USGS and the Missouri Department of Natural Resources recently issued a report that says several areas in the Rolla quadrangle have high potential for undiscovered metallic mineral deposits of major importance. These include lead, zinc, silver, copper, nickel, cobalt and iron, plus some potential also for barite, tin, tungsten, uranium, thorium, chromium, platinum, rare-earth minerals and diamonds. There already is some mining, mostly of lead, in the quadrangle area.

The new maps are published versions of earlier maps prepared by the USGS as open-file reports that had to be reproduced for sale from master copies on an individual basis.

"Publishing the maps makes them more readily available to the public, in a more convenient form and at a lower price," said Rupert B. Southard, Reston, Va., Chief of the USGS National Mapping Division.

The Rolla quadrangle covers all of the Dent, Iron, Madison, and Reynolds counties; most of Phelps, St. Francois, St. Genevieve, and Wayne counties; large parts of Crawford, Washington, Texas, Shannon, Carter, and Bollinger counties; and small parts of Perry, Howell, and Stoddard counties. (The area lies between 37 and 38 degrees latitude and between 90 and 92 degrees longitude.)

Copies of the Rolla map may be purchased, for \$1.25 each, from the Western Distribution Branch, U.S. Geological Survey, Box 25286, Federal Center, Denver, Colorado 80225. Orders must include the map name and identification number (Map L-99) and checks or money orders payable to the U.S. Geological Survey.

Dear USGS Friends,

Just to say thank you for the Retirement Scroll, check, and plumb bob-benchmark is so simple to state--along with them goes memories of days filled with a phase of the business of map-making and the joys of the association with a super group of people.

In gratefulness,
Louise Lyon

Dear Survey Friends,

Thanks so much for the plumb bob, scroll, and generous check. The plumb bob goes well with the decor on the mantel and has drawn many comments. The scroll will be framed, and the check will go for fishing gear. If any of you are ever in the vicinity of Noland's Point on Bull Shoals Lake, come by and I'll troll you around the point.

Retirement is wonderful!

Thanks,
Quentin Baker

Dear Survey Friends,

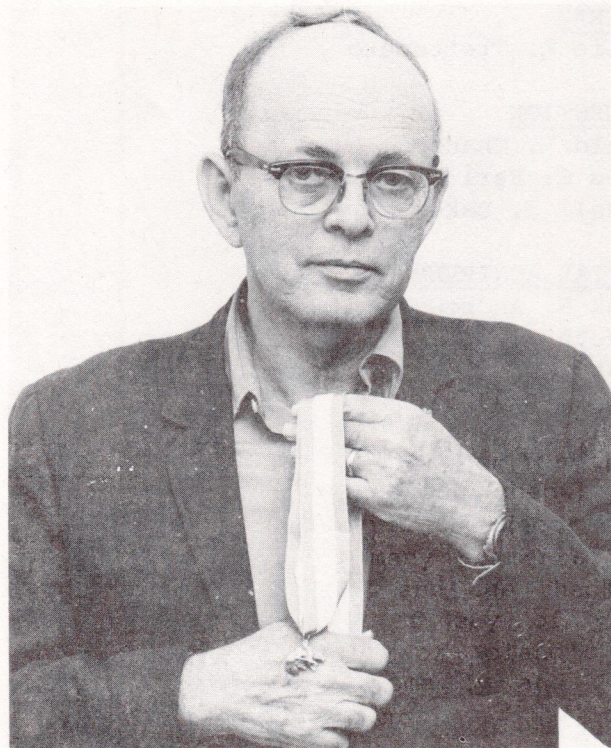
Thank you so much for my scroll containing the names of many Survey friends, for the handsome plumb bob-benchmark memento which I have setting in a place of honor, and for the nice check with which I plan to buy a good AM-FM radio. Most of all thank you for your friendships.

I enjoyed the presentation ceremony in the office, having coffee with others, and visiting friends in photogrammetry and at a few other stages. I hope to see some of the people I missed the next time I am there.

Sincerely,
Hilda Wade

JOHN COLE AWARDED SILVER BEAVER AWARD

by Jerry Wagner



John Cole, Branch of Photogrammetry, was awarded the Silver Beaver Award by the Ozarks Council, Boy Scouts of America, November 7. The Silver Beaver signifies outstanding individual service of exceptional character to scouting and to the community. This is the highest award that can be bestowed on a Scout leader by a local council.

The Ozark Council comprises over 2,000 adult leaders and approximately 8,000 Cubs, Scouts, and Explorers in 23 counties of south central Missouri. Only 5 other Rolla residents have received this award since its initiation in 1940.

John has given much of his time and energy to providing leadership and guidance to youths in his 25 years of service to scouting. Other awards he has received are the Scouter's Training Award, the Scouter's Key, the Scouter's Religious Award, and in 1974, the Award of Merit from the Big Piney District, BSA.

Congratulations John!

AWARDS

30-YEAR

Leslie A. Trettenero

SUGGESTION

Donald L. Chaney
James C. Earl
Lindall J. Baker

SPECIAL ACHIEVEMENT

Frank E. Andrews
Kenneth J. Boyko
Edward W. Cain
Donald L. Dunn
Brenda D. Hansen
Charles W. Hicks
Peggy S. Hughes
David A. Lenzi
Brenda L. Lyon
Karen J. Miller
Glenn C. Simmonds
Reva J. Stevenson
Edwin R. Tillott
Robert W. Ahland
Lance A. Barney
Gerald A. Belt
Ronald J. Boeding
Guy D. Bullock
Ruth F. Chapman
Clarence E. Cook
Pat P. Elliott
Maxine C. Gaddy
Donald A. Giesler
Charlotte Goforth
Eddie E. Leonard
Robert L. Johnson
Anthony J. Keepes
James E. Koons
Stephan W. Miller
Lynn C. Mosteller
Laverne C. Parrish
Jeanice I. Powell
Gerald T. Pruett
Robert E. Rinehart
Leona G. Rosenow
George Sandul
James H. Schoenmann
Richard A. Schwab
Eddie L. Schwartz
Thomas W. Wayman
Donald R. Lucas

PERSONNEL ACTIONS

ACCESSIONS

Jeffrey A. Greeno, Carto Aid, GS-2, PH
Barton W. Hammond, Carto Aid, GS-2, PH
Jerri A. Montgomery, Secretary (T), GS-3,
OCC, GIO
Mary L. Reynolds, Carto Tech, GS-3, P&P
Donald W. Schrader, Elec Tech, GS-5, IMU
Jacquelyn M. Paterson, Clerk-Typist, GS-3
P&P, NCIC-M
Edwin R. Tillott, Photographic Aid, GS-2,
CT
Terry G. Williams, Carto Aid, GS-2, CT
Judith K. Taylor, Carto Aid, GS-2, CT

LOSSES

Gertrude J. Wallace, optional retirement
Daniel J. Meyer, optional retirement
Sherree A. Smith, resignation
Tami S. Richardson, resignation

PROMOTIONS

Hylan L. Beylder to Clerk-Typist, GS-4, CT
David A. Lenzi to Carto Tech, GS-7, PH
Ricky D. Mace to Carto Tech, GS-7, PH
Donna S. Story to Carto Tech, GS-6, PH
Melvin L. Williams to Carto Tech, GS-9, CT
Lance A. Barney to Carto Tech, GS-7, FS
Robert E. Rinehart to Carto Tech, GS-7, FS
Victor P. Taipale to Carto Tech, GS-7, FS
Agnes C. Remington to Program Analyst, GS-7
P&P
Gary W. McKeown to Supv Cartographer, GS-12
PH
John A. Kelmelis to Supv Cartographer,
GS-12, PH
Richard B. Mumma to Supv Cartographer,
GS-12, PH
Kenneth J. Boyko to Supv Cartographer,
GS-11, PH
Albertina M. Ahlstedt to Carto Tech, GS-7,
CT
Lindall J. Baker to Carto Tech, GS-6, CT
Velma R. Nash to Carto Tech, GS-9, CT
Joyce L. Rigsby to Carto Tech, GS-9, CT
Gladys M. Conaway to Carto Tech, GS-6, PH
Charles R. Kelly to Cartographer (CDP),
GS-9, OCC
Bruce A. Bauch to Cartographer, GS-12, P&P
Anna L. Seibert to Carto Tech, GS-5, CT
Darryl S. Williams to Cartographer, GS-11
FS, FSIS

Viola V. Wilson to Carto Tech, GS-7, CT
Donald H. Beasley, to Supv Cartographer,
GS-13, FS, FSIS
David W. Bennett to Supv Cartographer,
GS-13, FS, Geodetic Section
Mary L. Reynolds to Carto Tech, GS-5, P&P,
NCIC-M, NSTL, Bay St. Louis, MS

DRIVING BLIND

You can't avoid the hazard you can't see. In winter, drivers are faced with special visibility problems that require some advance work before getting on the road. So plan ahead for the drive ahead, urges the National Safety Council.

Allow at least 10 to 15 minutes before every trip for snow removal and general cold weather conditioning of your car to meet prevailing weather conditions. For a systematic check, the Council recommends these winter sight-saving tips:

- 1) Remove snow, frost, or ice glaze from the entire windshield and all windows.
- 2) Clean off headlights and taillights so that other drivers can see them clearly.
- 3) Turn on your heater for a minute or two before using the defroster so humidity won't fog the windshield when it hits the cold glass.
- 4) Use your wipers and washer as often as required to prevent road spatter build-up.
- 5) Stop and wipe outside lights and mirrors from time to time to control spatter, snow, or moisture build-up.
- 6) Keep lights on low beam when driving in fog or heavy snowfall.

ANNUAL SURVEY PICNIC

by Carol Willeford

The Annual Survey Picnic was held on Saturday, September 19, 1981, at the Lions Club Park. Over 200 people attended and feasted on BBQ Chicken provided by the Social Committee and covered dishes provided by those families attending. The food was excellent and the Social Committee would like to extend a special "thanks" to the people who came out early and spent the day preparing the chickens. Chief cook was Stan Kirkendall, locally known as Chef Boy-ar-Kirk. He was assisted by Dave Lenzi, Bill Corey, Irv Hawkins, Bill Young, Don Moreland, Angus Pedro, and Wilbur Willeford. Highlights of the day included the annual horseshoe tournament, a fishing derby, a turtle race and several kids games. The hit of the day had to be the "needle in the haystack" game. The adults enjoyed this one as much as the kids, both as spectators and as participants. Another special "thanks" to Sherry Von Klemen, who was in charge of the games, for some refreshing new ideas and her excellent handling of the job.

John Meyer was in charge of the horseshoe tournament and his stirring account of the event will be covered in the sports section.

Prizes for all the events were awarded during the dinner hour.

The weather was great, the food was excellent the company was outstanding. All these things combined to make the Annual Picnic a tremendous success.

The Social Committee would like to thank everyone who attended. You're the ones who really make these events a success and we couldn't do it without you.



SPORTS

GOLF NEWS

by Gary Raymond

The annual golf championship and awards dinner was held on September 11, at the St. James Golf Club. Fifty-seven golfers participated in the tournament and 80 people were present for the dinner.

Following the dinner, a slide show was presented by the Golf Committee. Trophies were presented to the USGS Scramble League winners KIRKS JERKS and various golf category awards were given. The Sportsperson award was won by Dale Stevens and the Most Improved Golfer by Neil Schwartz.

Flight Winners:

Championship

1st R. Parker--82
2nd E. Coleman--83
3rd H. Crowell--83

A Flight

L. Robison--85
A. Harris--85
C. Finley--86

B Flight

1st P. Hensley--92
2nd R. Sidie--95
3rd B. Bauch--95

C Flight

M. Moreland--96
G. Cannell--99
T. Keepes--100

D Flight

1st G. Raymond--101
2nd D. Bolin--103
3rd L. Hale--105

E Flight

B. Yenser--109
G. McKeown--116
A. Pretzer--117

Longest Drive--Bob Newkirk

Nearest to Pin--Bob Newkirk

The 1982 Golf Committee was named: Earl Coleman, Gene Cook, Allen Giebink, and Dwayne Sawyer.

The 1981 Golf Committee wishes to thank all persons who participated in regular league play, and the three tournaments that were held.



HOLE-IN-ONE

Ron Wood, Branch of Photogrammetry, hit a hole-in-one on October 4, 1981, while playing in a 3 person scramble tournament at Elmwood Golf Course in Washington, Mo. Ron's feat occurred in the second round on the Par 3 second hole. The ball hit in front of the green and rolled in!

HORSESHOE CHAMPIONSHIP

by John Meyer



The USGS 1981 Horseshoe Pitching contest was held September 19 at Lions Club Park during the Annual Survey Picnic. The contest was marked by the return of several retirees who were seasoned veterans of horseshoe tournaments. The total number of entrants was few this year but all were formidable contestants. This day, however, would go to two retirees, namely Hal Ogletree and Karl Eissinger. With methodical efficiency, Hal and Karl eliminated the 1980 champion, John Meyer and all other perennial favorites. In the final round it was Hal and Karl in close competition with Karl coming up with the win.

Congratulations to Karl Eissinger, 1981 USGS Horseshoe Pitching Champion.

PIRATES ARE 1981 SOFTBALL CHAMPS



1st Row - Tom DiNardo, Ed Leonard, Bob Scott; 2nd Row - Dave Schneider, Alan Peed, Bob Lemen; 3rd Row - Ken Salts, Paul Schubring, Gerry Pruett, Don Giesler

Park's Pirates were winners of the USGS Annual Slow Pitch Softball Championship which was played at Ber Juan Park.

Against the Water Resources Division Beavers, the Pirates got off to a slow start and were behind 1-0 after two innings. Finally in the third inning the Pirate offense was unveiled as five runs crossed the plate. Bob Lemen's home run highlighted that uprising. Good Defensive play then held the Beavers scoreless the final four innings resulting in a 9-2 decision.

Water Resources Division spoiled Photography's chance for the title by defeating them in a close game with a score of 13-9.

USGS WONDERWOMEN OUTSLUG FORESTRY SMOKIES 13 TO 8

by Eddie L. Schwertz, Jr.

Accepting a challenge from the U.S. Forest Service women's softball team the USGS women's softball team, lovingly referred to as Wonderwomen, and the Smokies met at Ber Juan field in Rolla on October 13, on what turned out to be a rather cool, drizzly night. Thanks to the good graces of the Smokies, USGS was allowed to begin play with only seven players; the Smokies took the field with all 10 players.

Just prior to the start of the first inning, Val Jontz showed up in her normal human costume--dress, etc. Realizing how undermanned--oops, I mean underwomaned--we were, Val returned a few minutes later in her Wonderwoman outfit (softball clothes) just as USGS was coming to bat in the bottom of the first. The Smokies scored three runs in the top of the first. Our Wonderwomen could only get one run in the first.

With Debbie Schwertz pitching, Carolyn Tatum at first, Kym Timson at 2nd and short, Hylan Beydler at 3rd and short, Val Jontz in left field and rover, Sherry Von Klemen at rover and center field, Pat Borgerding in right field, and Val Creighton catching, the coaches, myself and George Timson, had to undertake some risky maneuvers to hold the Smokies to only five runs over the last six innings.

Offensively, the Wonderwomen were overpowering. Debbie Schwertz hit a grand-slam home run in the 4th which brought the score 10 to 6. Extra base hits were common. Had it not been for several fine plays by Anita Baker of the Smokies, the Wonderwomen might have scored 7 or 8 more runs--twice she caught tough line drives to end innings with the bases loaded.

The only disappointment of the evening was poor attendance. We hope next year that more USGS men and women show up to support a fine women's team.

BOWLING NEWS

by Sherry Von Klemen

The USGS Early Bird League was off to a flying start with twelve, count'em twelve teams bowling this year. The officers elected for the 1981-82 season are Pam Malam--President, Ron Harris--Vice President, and Sherry Von Klemen--Secretary-Treasurer.

The enthusiasm to bowl this year is evident both by the number of teams formed and the various occurrences on the lanes. On just the second night of bowling, Don Giesler bowled a 245 game followed up by a 639 series. On that same night, Pat Ryan bowled a triplicate to become our first ABC patch recipient. Eddie Schwertz on Nov. 12 marked on 25 consecutive frames.

Neither the spirit nor the enthusiasm of the teams has wanned in the eleven weeks of bowling we've had. November 19 was the last night of regular bowling for this half. On December 3, there will be a position round night of bowling. The two teams who will be closely watched will be Bennett's Boys

who are in first place with a 56-21 win loss record and the second place team they will be bowling against the Leftovers with a 52-25 w-l record. We are bowling on seven point system so the Leftovers must win at least 6 points to beat Bennett's Boys.

The standings as of November 19 are as follows for the 1st half:

1. Bennett's Boys	56	21
2. Leftovers	52	25
3. Alley-Gators	49	28
4. Strikers	47	30
5. Bombers	44	33
6. Pares and Spares	43	34
7. Misfits	39	38
8. Grumps	36	41
9. Lucky Strikes	30	47
10. Spare Parts	28	49
11. Rejects	21	56
12. Old Style	17	60

For an evening to remember, come join the U.S. Geological Survey Bowling League on Thursdays--after all, bowling is America's 2nd greatest indoor sport...following TV, of course.

LATE NEWS FLASH!!!

Bennett's Boys win 1st half!

